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Edward S. Beeman

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03/25/2004

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EXAMINER

LEE, CHEUKFAN

ART UNIT

PAPER NUMBER

2622

DATE MAILED: 03/25/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/838,974

Applicant(s)

BEEMAN, EDWARD S.

Examiner

Cheukfan Lee

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-11, 13-17, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 6, 12 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

1. Claims 1-20 are pending. Claims 1, 7, 13, and 20 are independent.
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 7-10, 13-16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Nakamura et al. (U.S. Patent No. 5,969,343).

Regarding claim 1, Applicant's admitted prior art discussed on page 7 in reference to prior art Figs. 1 and 2 is a system for capturing an image by an optical detector (101 in Fig. 1). The system comprises an illumination system (Fig. 2) to illuminate a scan region, the illumination system including a bulb (200 in Fig. 2), and an optical reduction component (102 in Fig. 1) to reduce image light for receipt by the optical detector (101 in Fig. 1).

Applicant's prior art bulb differs from the claimed invention in that the bulb does emit light of greater intensity near its extremities than its center as claimed.

Nakamura et al. discloses a bulb (Figs. 10A and 11F) for an image capturing system. The bulb comprises a light diffusion/reflection section (2) and a specific shape that allows the light emitted to be of greater intensity at its extremities than its center

(col. 18, line 65 – col. 20, line 13, note col. 18, line 65 and col. 20, line 10). The bulb of Nakamura et al. produces uniform light at the output of the light bulb (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the bulb of Applicant's prior art with the bulb of Nakamura et al. to produce uniform light at the output of the bulb as taught by Nakamura et al. in order to reproduce a high quality image.

Regarding claim 2, the bulb of Nakamura et al. has a diameter smaller at the center than at its extremities (Figs. 10A and 11F).

Regarding claim 3, Nakamura et al. discloses gradually increasing the diameter of the bulb from its center to the ends or extremities thereof but does not explicitly disclose that the diameter increases more rapidly near the ends than at the center. However, Nakamura et al. also discloses that the light diffusion/reflection section (2 in Fig. 11F) formed so that a ratio of a diameter of cross-section of the bulb to a width of the light diffusion section (2) is kept constant along the longitudinal direction of the bulb (col. 20, lines 9-13). One of ordinary skill in the art would have realized that this means that this feature produces higher intensity light at the ends of the bulb as compared to the case the width of section (2) remains constant along the longitudinal direction of the bulb, and thus that increasing the diameter of the bulb more rapidly near the bulb's ends than near the center while either keeping the width of the section (2) constant or increasing the width of section (2) as approaching the ends from the center thereof further increases the light intensity at the ends. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to increase the

diameter of the bulb more rapidly near the ends thereof to further increase the light intensity at the ends in order to produce even more uniform light output of the bulb.

Regarding claim 4, see image reading apparatus and facsimile machine of Nakamura et al. (col. 1, lines 5-13).

Claims 13-16 are rejected for the reasons given for claims 1-4, respectively, for claims 13-16 reciting limitations similar to those of claims 1-4, in means-plus-function format.

Claims 7-10 are rejected as being method claims corresponding to rejected apparatus claims 1-4, respectively.

Regarding claim 19, Applicant's detector (101) discussed on page 7, lines 1-5, and shown in prior art Fig. 1 is inherently a charge-coupled device (CCD), according to the prior art discussion in the BACKGROUND section of the specification, page 2, lines 17-22.

4. Claims 5, 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Nakamura et al. (U.S. Patent No. 5,969,343) as applied to claim 1 above, and further in view of Tellam et al. (5,969,221).

Regarding claim 5, the system of Applicant's prior art in view of Nakamura et al. is discussed for claim 1 above.

Nakamura et al. further discloses that the light diffusion or reflecting section (2 in Fig. 10A and 11F, or section 71 in Fig. 7) is formed by coating or painting or the like

(col. 16, line 55 – col. 17, line 15), although a light diffusion and/or reflection section can have a surface of triangular wave shape or a sawtooth surface (col. 20, lines 25-40).

Nakamura et al. does not disclose coating the section (2) with fluorescent material as claimed. However, coating a bulb with fluorescent material to increase light intensity is taught by Tellam et al. (lamp 2020 in Fig. 23, col. 17, lines 45-53). The bulb of Tellam et al. is employed in a document scanner.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to coat the light diffusion and reflecting section of the system of Applicant's prior art in view of Nakamura et al. (2 of Nakamura et al.) with fluorescent material as taught by Tellam et al. to further increase light intensity of the bulb.

As to the claimed "gradiently coated", the coating with fluorescent material discussed above is gradient coating because of the shape of the section (2) shown in Fig. 11F, that the width of the section is wider near the ends of the bulb than the close to the center of the bulb.

Claims 11 and 17 are rejected for the reasons given for claim 5 for claiming the same or similar limitation.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 20 is rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (U.S. Patent No. 5,969,343).

Regarding claim 20, Nakamura et al. discloses a bulb (Figs. 10A and 11F) for an image capturing system. The bulb comprises a light diffusion/reflection section (2) and a specific shape that allows the light emitted to be of greater intensity at its extremities than its center (col. 18, line 65 – col. 20, line 13, note col. 18, line 65 and col. 20, line 10). The bulb of Nakamura et al. produces uniform light at the output of the light bulb (abstract).

7. Claims 6, 12 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is an examiner's statement of reasons for allowance:

Claims 6, 12 and 18 would be allowable because the bulb discloses by the closest prior art applied above, Nakamura et al., is not an incandescent bulb but a light guide and a light emitting diode positioned at the end of the light guide.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Horiuchi et al. (U.S. Patent No. 6,204,938) discloses a linear illumination device and image reading apparatus using the device.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheukfan Lee whose telephone number is (703) 305-4867. The examiner can normally be reached on 9:30 a.m. to 6:00 p.m., Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (703) 305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cheukfan Lee  
March 3, 2004

  
*cheukfan lee*